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Expera Specialty Solutions LLC
Lime Kiln Emission Test
at
Kaukauna, WI

August 26, 2014
P.O.# 523588 OS

Prepared by:

BADGER LABORATORIES & ENGINEERING
501 W. Bell Street
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September 25, 2014

Bruce F. Lamers
Project Manager

WI DNR Certified Lab #445023150
WI Reg. Engineers (Corp.) #CE00601
WI DATCP Certified #205 (Bacteria-Water)

Members
WI Environmental Labs. Assn. Chemical Soc.,
T.A.P.P.I., WI Food Processors Assn.
Wisc. Paper Council

II. Summary of Results

Particulate Emission Results

8/26/14

Test Run	Volumetric Flow Rate <u>dscfm</u>	Isokinetic Ratio, % <u>Ratio, %</u>	Particulate Emission	
			gr./dscf Corr. to 10% O ₂	Total, lbs./hr <u>Total, lbs./hr</u>
1	8,742	99.0	0.020	2.54
2	7,646	99.5	0.021	2.03
3	7,533	100.9	0.023	2.29
Average	7,974		0.021	2.3
lbs./hr Limitation				13.8
MACT II Limitation			0.067	

Formula for correcting to 10% Oxygen.

$$C_s 10\% = \frac{11}{21 - \%O_2} C_s$$

III. Process Description

The stack (S12) carries exhaust gases from the Lime Kiln process (P12). During the test the Lime Kiln was operating at 205 tons per day feed rate. Cyclones, an Ahlstrom wet scrubber and Turbotek scrubber nozzles are used for emission control. Lime Kiln Production data and control equipment data supplied by Expera personnel is contained in the Appendix. Any additional data can be obtained from Expera personnel.

IV. Comments

The testing on August 26, 2014 proceeded normally with no problems that we were aware of. To the best of our knowledge the test's results are accurate and reflect the process emissions during the test period. All leak checks, isokinetic sampling rates and calibrations were within method tolerances.

EXPERA SPECIALTY- THILMANY MILL											
LIME KILN TRS CEMS RATA											
PROCESS AND SCRUBBER PARAMETER DATA— August 26, 2014											
Run No.	Start Time	End Time	Lime Mud Feed Rate CaCO ₃ ; TPD kln-qtc_1063.pv	Lime Production Rate CaO; TPD	Ahlstrom Scrubber Water Flow GPM kln-fi_1098.pv	Ahlstrom Scrubber Water Pressure PSIG kln-pi_1097.pv	Turbotak Scrubber Water Flow GPM kln-fi_1201.pv	Turbotak Scrubber Air Pressure PSIG kln-pi_1088.pv	Nat. Gas Flow SCF/HR kln-fic_1084.pv	Lime Production Rate CaO; TPH	% of Full Production *
1	8/26/2014 8:18	8/26/2014 9:20	205.0	108.0	335.4	272.7	49.10	106.77	26802	4.50	93%
2	8/26/2014 9:40	8/26/2014 10:42	205.1	108.1	335.2	272.6	49.11	106.65	26693	4.50	93%
3	8/26/2014 11:00	8/26/2014 12:00	205.0	108.0	335.2	272.6	49.13	106.57	26904	4.50	93%
		AVERAGE	205.0	108.0	335.3	272.6	49.1	106.7	26799.8	4.5	93%
* CaO currently limited to 116.2 tpd with 2012 NOx stack test factor of 1.8385 lb/ton CaO											

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